Important:

As an ultimate user of this device, you have the responsibility to understand its proper function and operational characteristics. This operator's manual should be thoroughly read and all operators given adequate training before attempting to place this unit in service.

None of the information in this manual should be considered medical advice. You should consult your medical adviser for diagnosis and treatment.

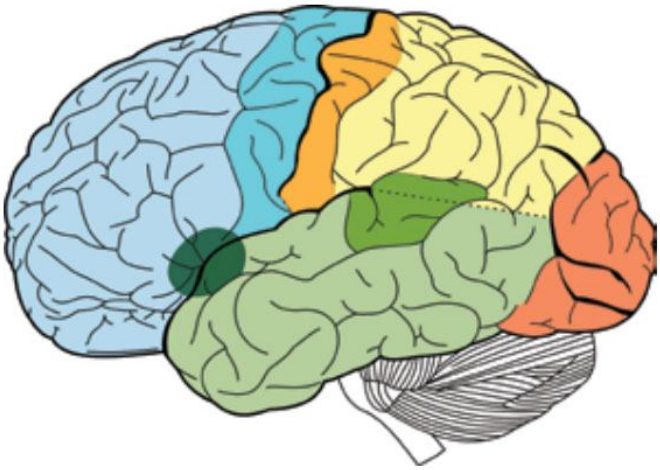
Content

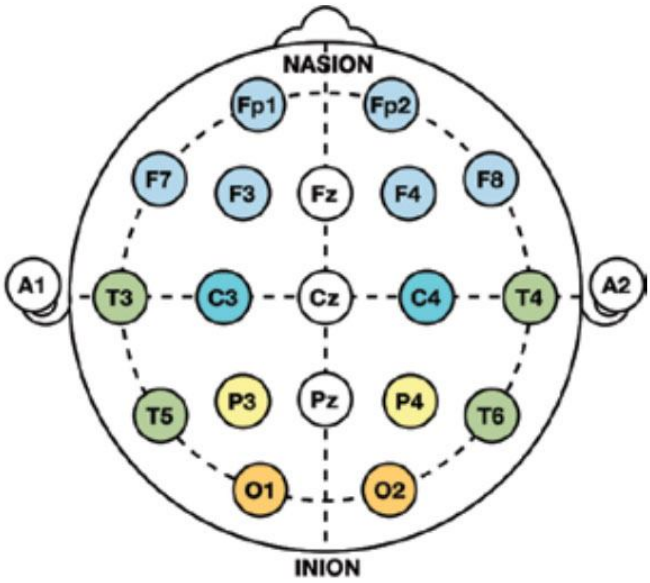
About tDCS

Transcranial Direct Current Stimulation (tDCS) is a noninvasive procedure in which a device sends a small Direct Current (DC) across the scalp to modulate brain function.

The tDCS sends a low-level current from the positive electrode, anode, to the negative electrode, cathode. When the extremely low level current passes from the anode to the cathode, it may simultaneously increase the activity of the brain by the anode and decrease the activity of the brain near the cathode.

tDCS mechanisms are considered to result from the ability of very weak DC currents to safely induce reversible changes in cortical plasticity. The induction of lasting changes in cortical excitability can, under some conditions, reversibly modify behavior and interact with normal learning. Such findings have driven a large number of studies examining whether tDCS might induce functionally significant changes in patients with a large variety of neurological and psychiatric disorders.





tDCS dose can be defined as: 1) The size and position of the electrodes on the body and 2) The duration (in minutes) and intensity (in mA) of current passed across the electrodes. Unit allow precise reproduction of tDCS doses commonly used in medical literature. tDCS safety is supported by medical literature but particular user may notice mild and reversible skin irritation when using standard tDCS protocols and guidelines, user may lower the intensity to minimize the uncomfort may cause. tDCS protocol, clinical results, and safety data can be better understood by consulting the papers found in the bibliography at the end of this manual. User should seek for medical advice from health care professional before conducting any medical uses.

Note: tDCS is an investigational technique and it is the responsibility of the operator to determine the appropriate tDCS dose.

About device

Regulated 2mA power supply (accuracy +/- 5%) with wire (about 0.9 m - 1 yard)

Electrode cable: **wire about 0.9 m - 1 yard, wire has anode/cathode +/- electrodes (thickness 2mm)**

Saline solution: **You can mix 1 teaspoon of salt with 350mL of water to serve. Shake up the solution until the salt is completely dissolved into the water.**
Battery: **When the battery has finished its duty, you can replace it with standard 9V (battery model 6F22) battery.**

Use with care like most of the electric products:

Do not put the device into water
Do not put it into fire and high temperature
Do not put it near flammable source
Do not drop the device
Do not put the sponges onto wound
Do not use tDCS devices if there is medical implants e.g. defibrillators / pacemakers / deep brain stimulators
Do not use tDCS devices if suffer from seizures.
Do not walk around or move the device while it is operating to avoid hardware damage. You can safely move your device only when you have properly disconnected and powered off the device.
Do not allow saline solution to dry on device after use, as it is a corrosive substance and it can cause damage to components and materials.
Do not install used 9-volt batteries on the tDCS device. When not using your unit for extended periods of time, remove the battery from the battery compartment to avoid battery leaks.
Incorrect handling, such as dropping the device, can cause damage to its internal structure.
Do not attempt to modify the device in any way.
Do not remove any cables without properly powering off the device.
Do not set any liquids or drinks on the device. Liquids can damage the internal electronics.
Do not stack anything on top of the tDCS device, this can damage your device.
Do not use in extreme hot or cold temperatures. If the device has been exposed cold or hot temperatures, let it a climate to normal operating temperatures before utilizing it. Ambient temperature and device temperature should be between 10 to 30 Celsius or 50 to 90 Fahrenheit.

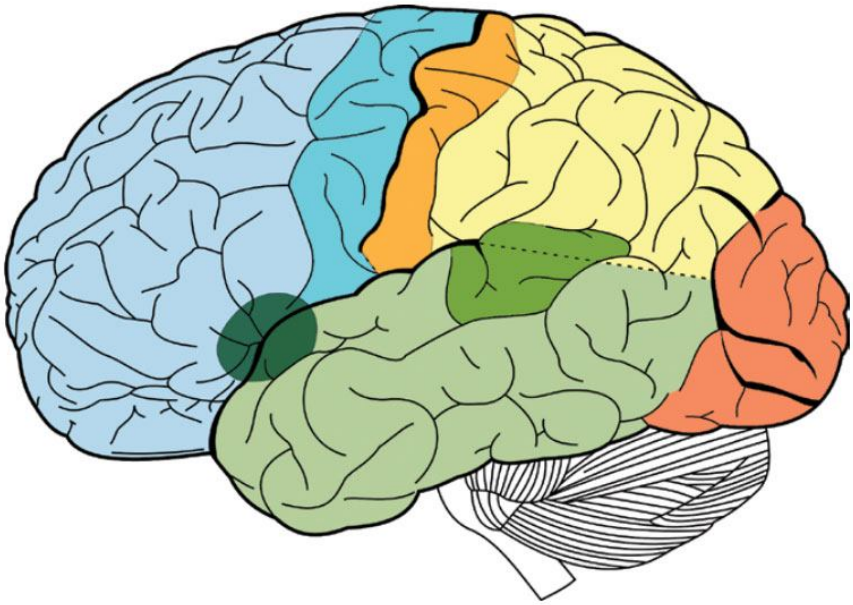
NEVER ALLOW ELECTRICALLY CHARGED METAL SURFACES TO TOUCH SKIN DIRECTLY DURING USE.

Troubleshooting

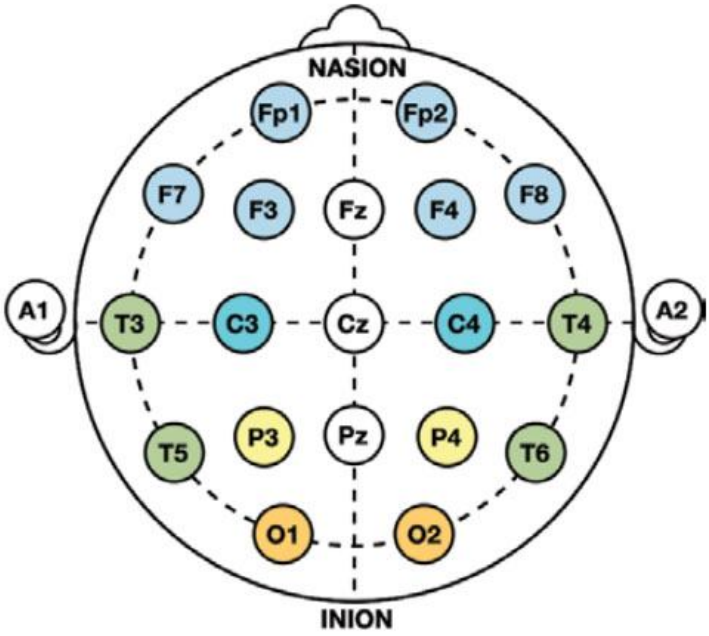
Meter won't reach 2 mA

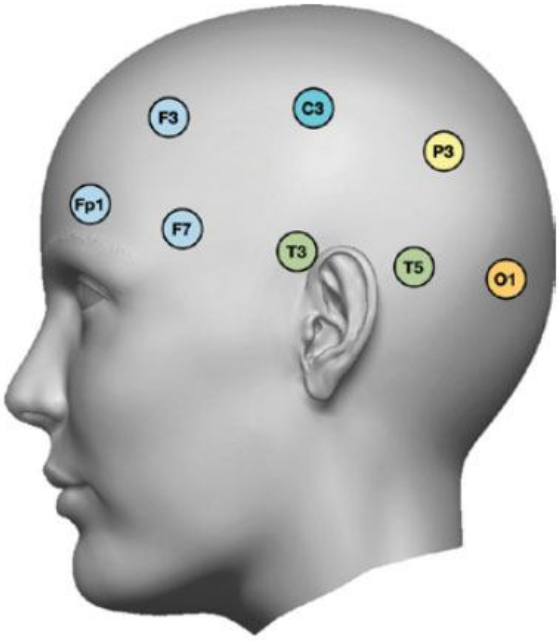
If your device operates normally, tests without any issues, but does not reach 2 mA during stimulation, you may have to soak electrodes slightly more to allow for proper conductivity conditions to be reached. Hair is a good electrical insulator souse as much saline as possible without over watering them. Also try readjusting electrodes slightly for better contact.

How to use



Prefrontal Lobe	Attention, short-term memory, planning, cognition
Primary Motor	Control muscles
Temporal Lobe	Processing auditory and visual, language recognition
Broca's area	Speech comprehension
Wernicke's area	Language recognition
Parietal Lobe	Coordinate sensory
Somatosensory	Sense of touch
Occipital Lobe	Receive visual information



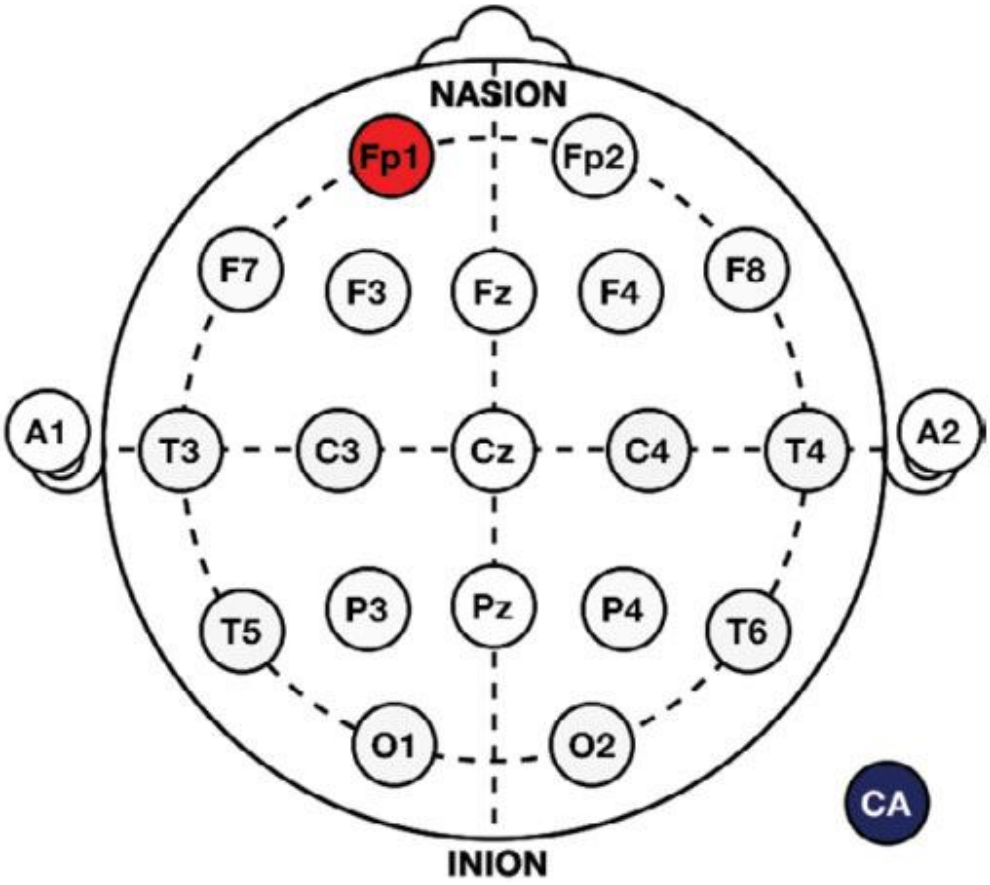


Anode (red electrode) will increase the neuronal excitability, while the cathode (black electrode) will decreases the neuronal excitability. By locating anode and cathode to specific area of the brain, user could therefore enhance or suppress the corresponding neuronal function.

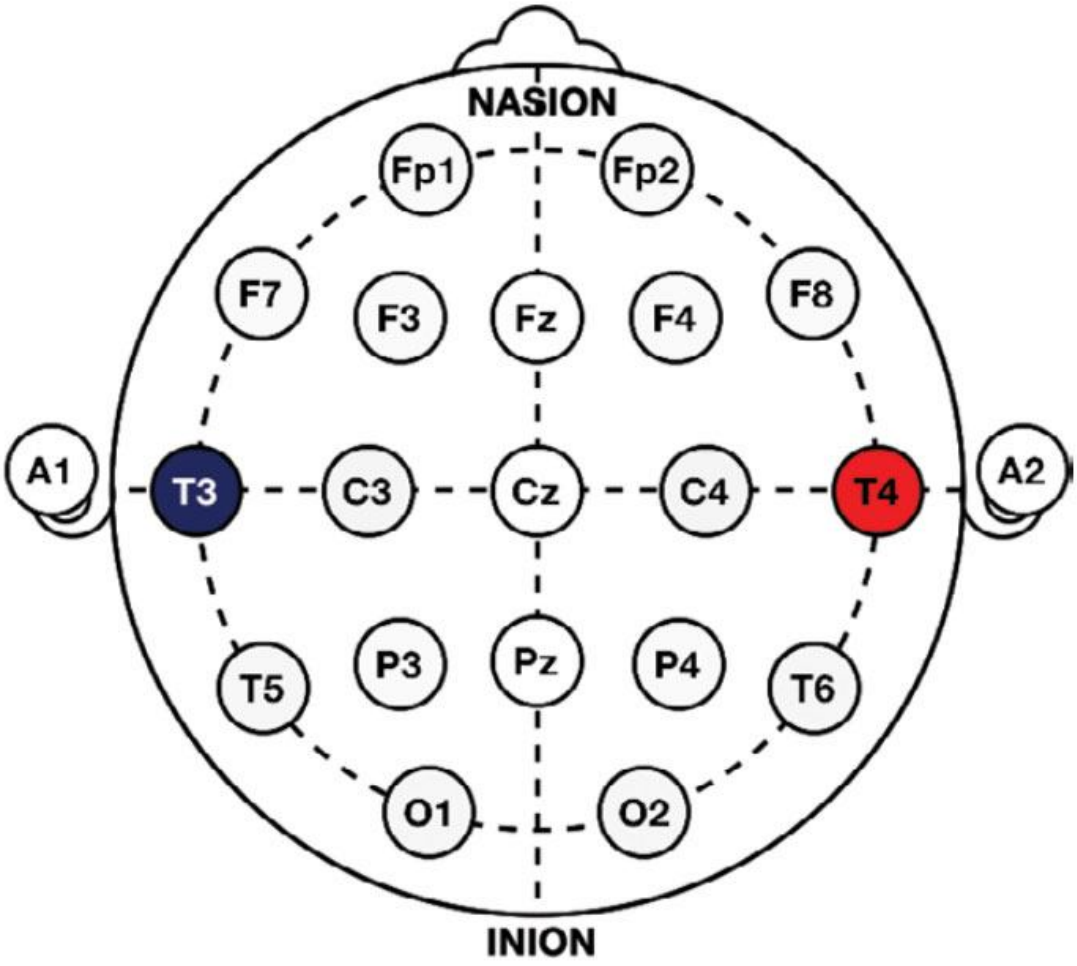
For most of the case, user could take one session per day, with 20 minutes each session. User can start the treatment at 1mA and eventually to the intensity of 2mA. There could be tingling sensation, user should lower the intensity if it causes uncomfortable. User should also consider to lower the intensity if decides to go for a longer session.

The effect could last for half an hour or up to 5 hours according to different researches. There is also reports of prolonged benefit months later when user maintain one session per day for consecutive two weeks.

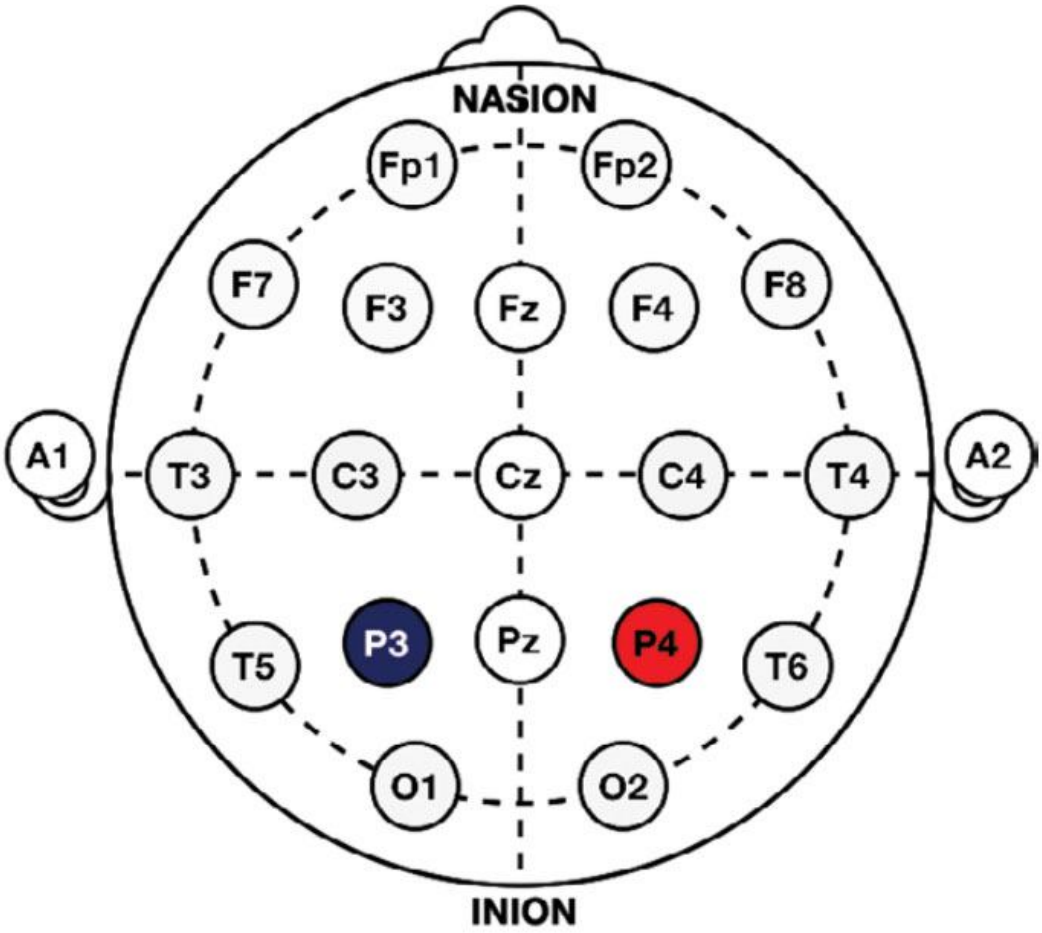
Learning Boost



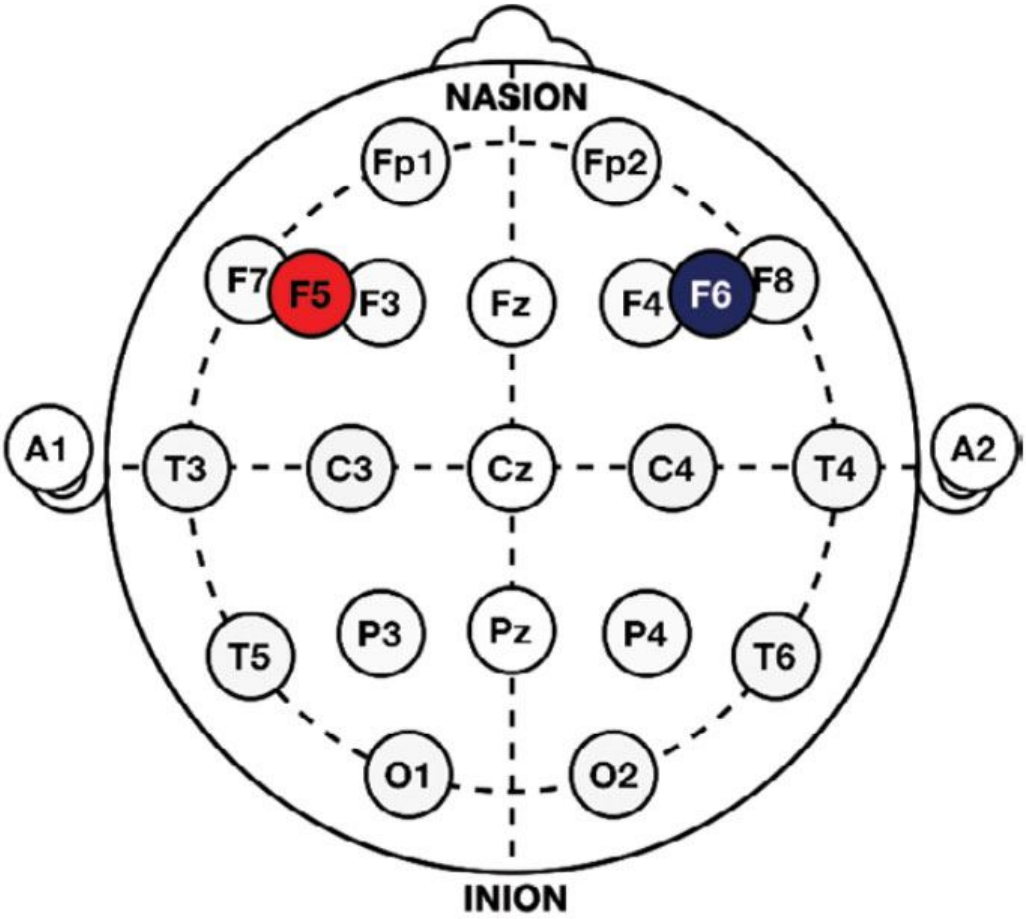
Boosting Memorization, Learning and Attention:
Anode: Fp1
Cathode: Right Shoulder
Intensity: 2mA
Duration: 20 minutes
The treatment can be undertaken during studying. It will provide better concentration and better memory. User is suggested to use 14 days in series to achieve prolonged effect.



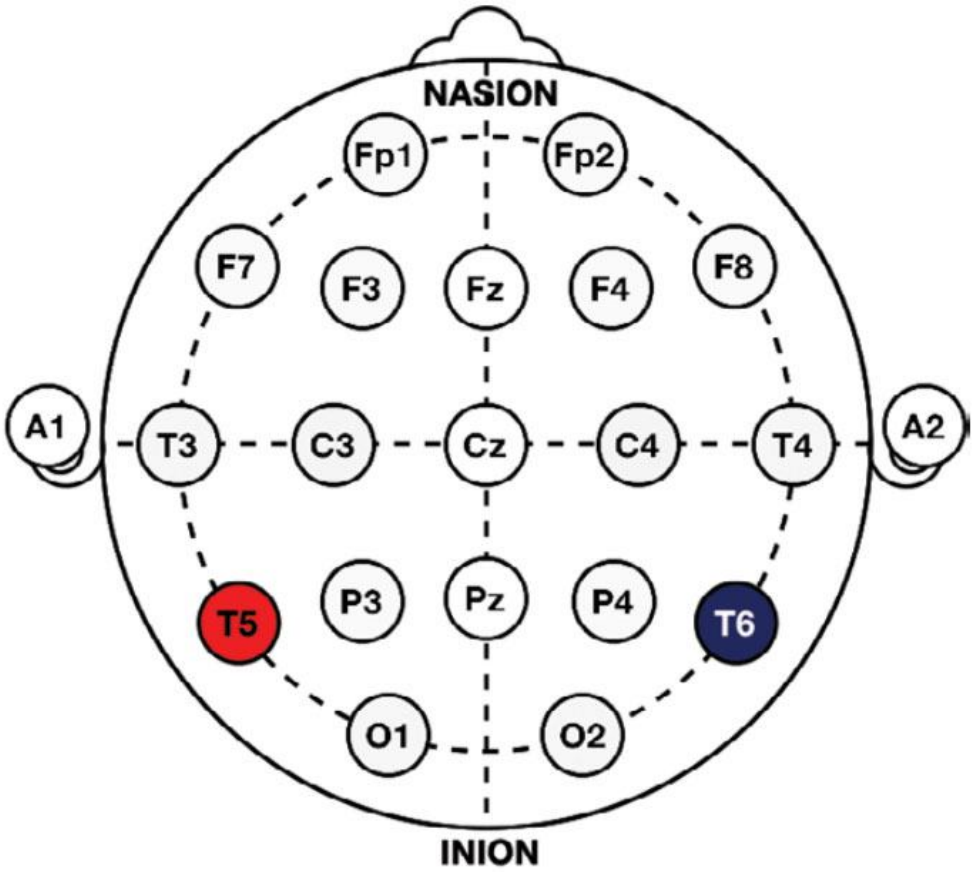
Improving Insightfulness and Creativity:
Anode: T4
Cathode: T3
Intensity: 2mA
Duration: 20 minutes
The treatment can be undertaken during working on tasks required insight, like problem solving and brainstorming.



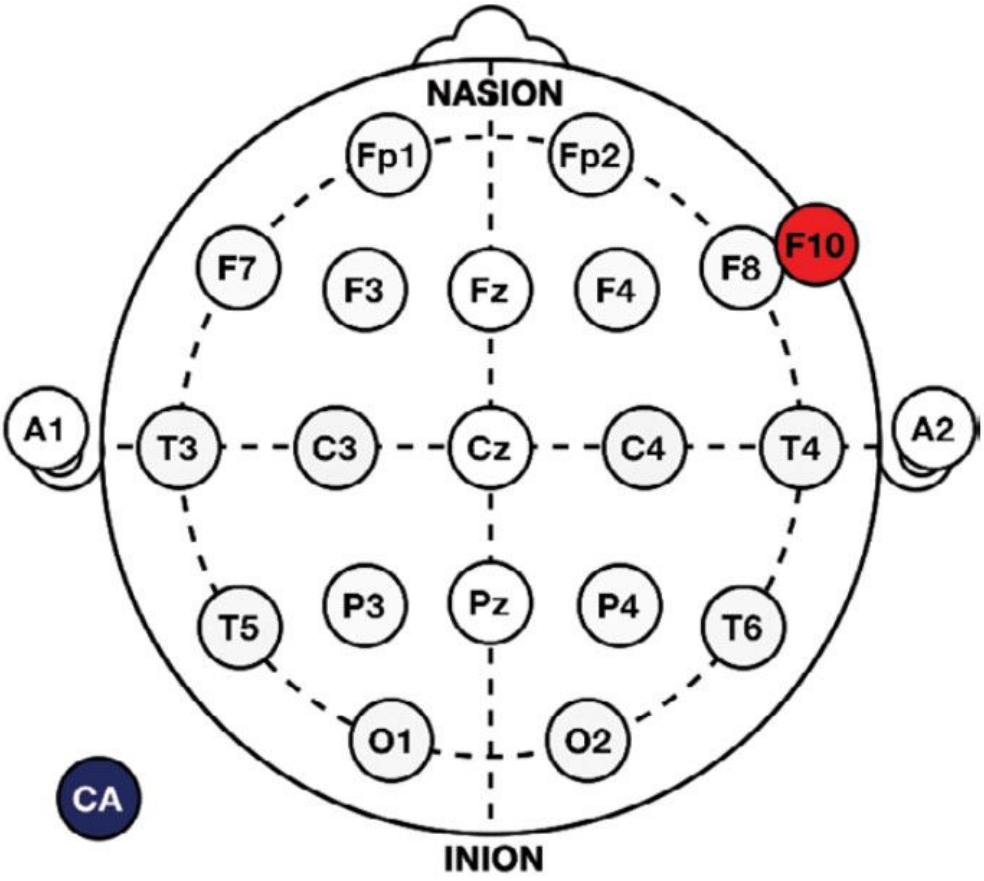
Mathematical Ability, Abstract Analysis:
Anode: P4
Cathode: P3
Intensity: 2mA
Duration: 20 minutes
The treatment can be undertaken during learning of mathematics, it can increase the processing ability of symbol and abstract ideas.



Improving Speech:
Anode: F5
Cathode: F6
Intensity: 2mA
Duration: 20 minutes
The treatment can be undertaken during, or before giving a speech. To simulate the Broca's area, the user can do better in constructing sentences, users suffered from chronic aphasia will get more significant improvement.

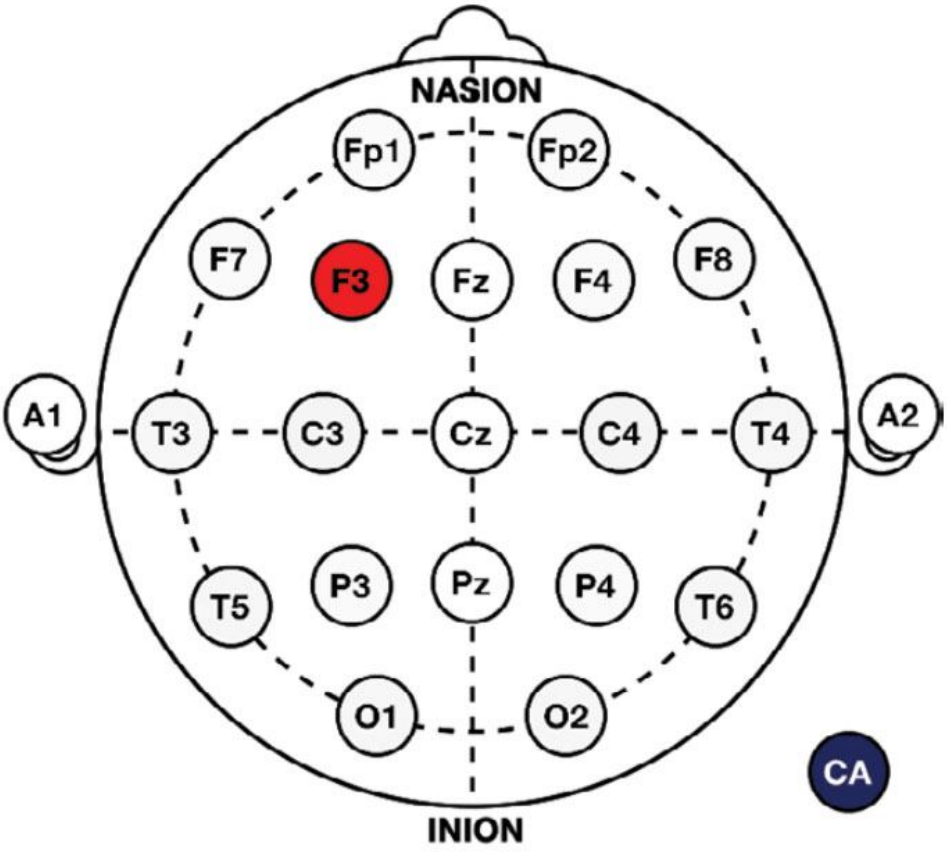


Language Learning:
Anode: T5
Cathode: T6
Intensity: 2mA
Duration: 20 minutes
The treatment can be undertaken during learning of language. To simulate the Wernicke's area, the user can do better in comprehension and word retrieval.

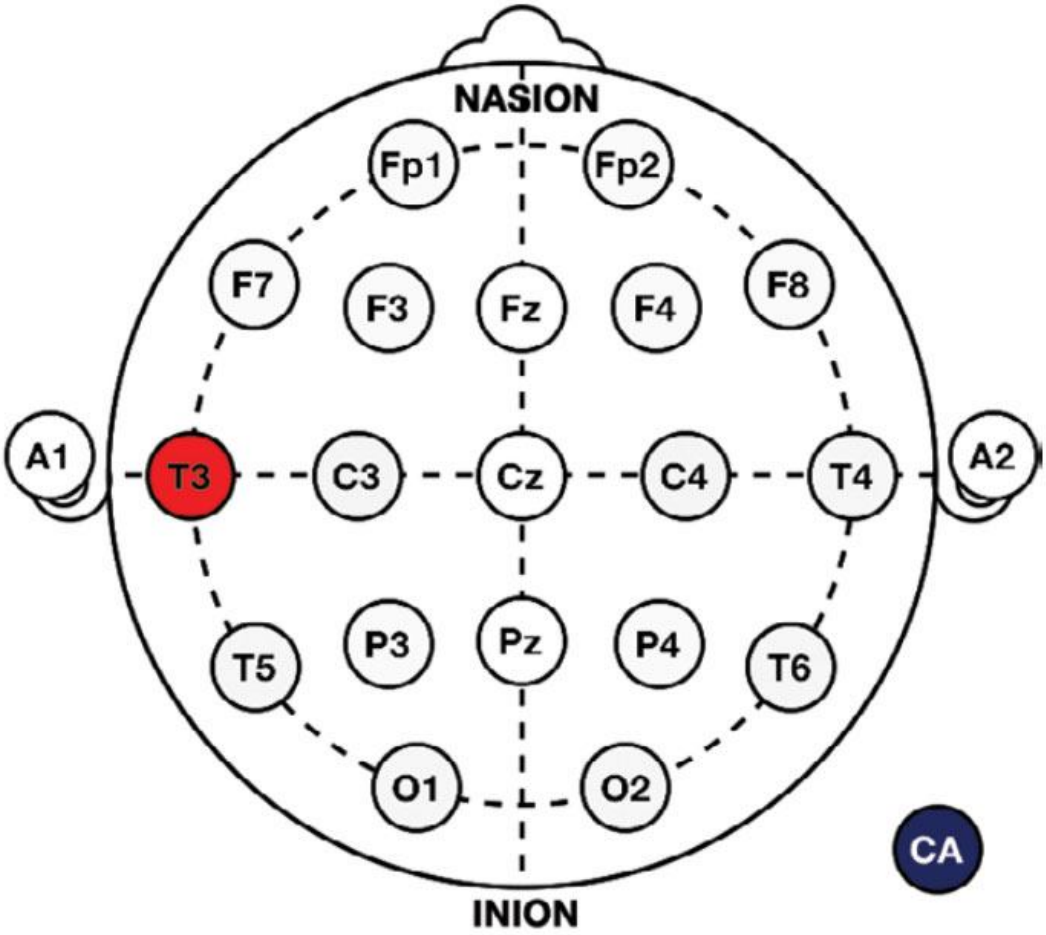


DARPA's Training:
Anode: F10
Cathode: Left Shoulder
Intensity: 2mA
Duration: 30 minutes
DARPA experimented with this placement by testing it on their snipers while learning new material, and it results in shortening the learning time by half.

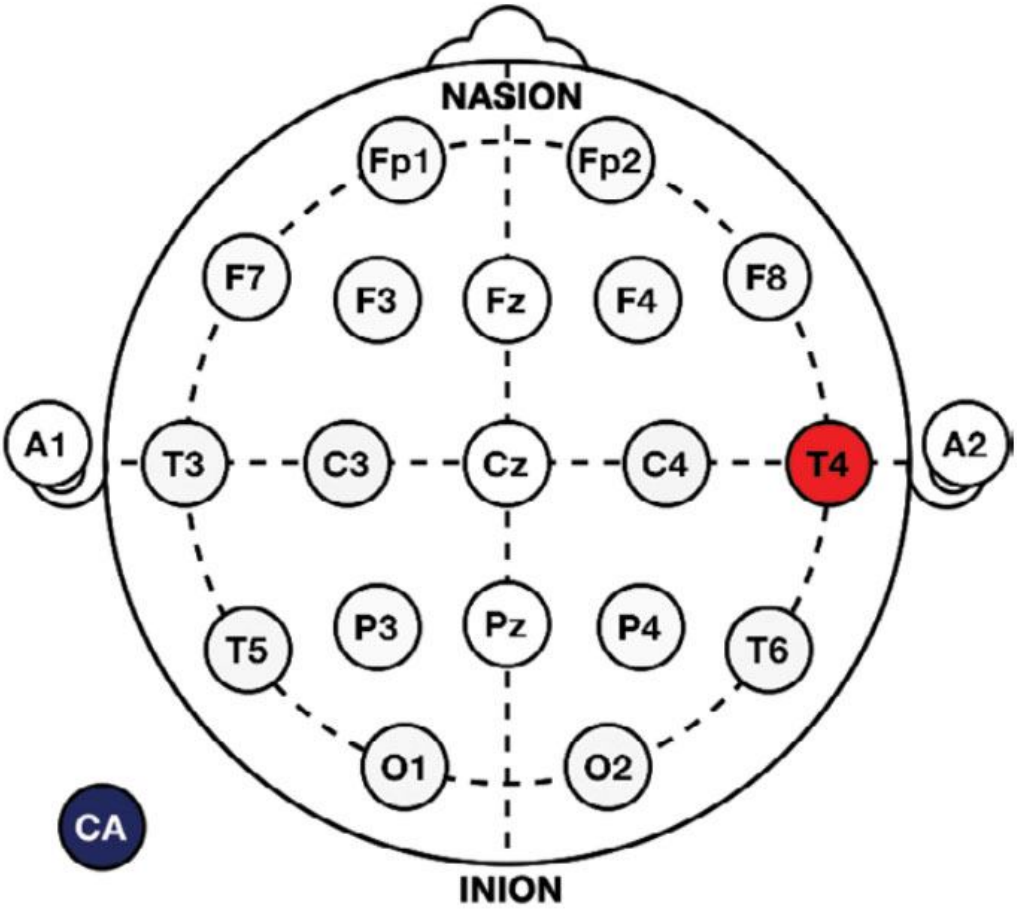
Health Care



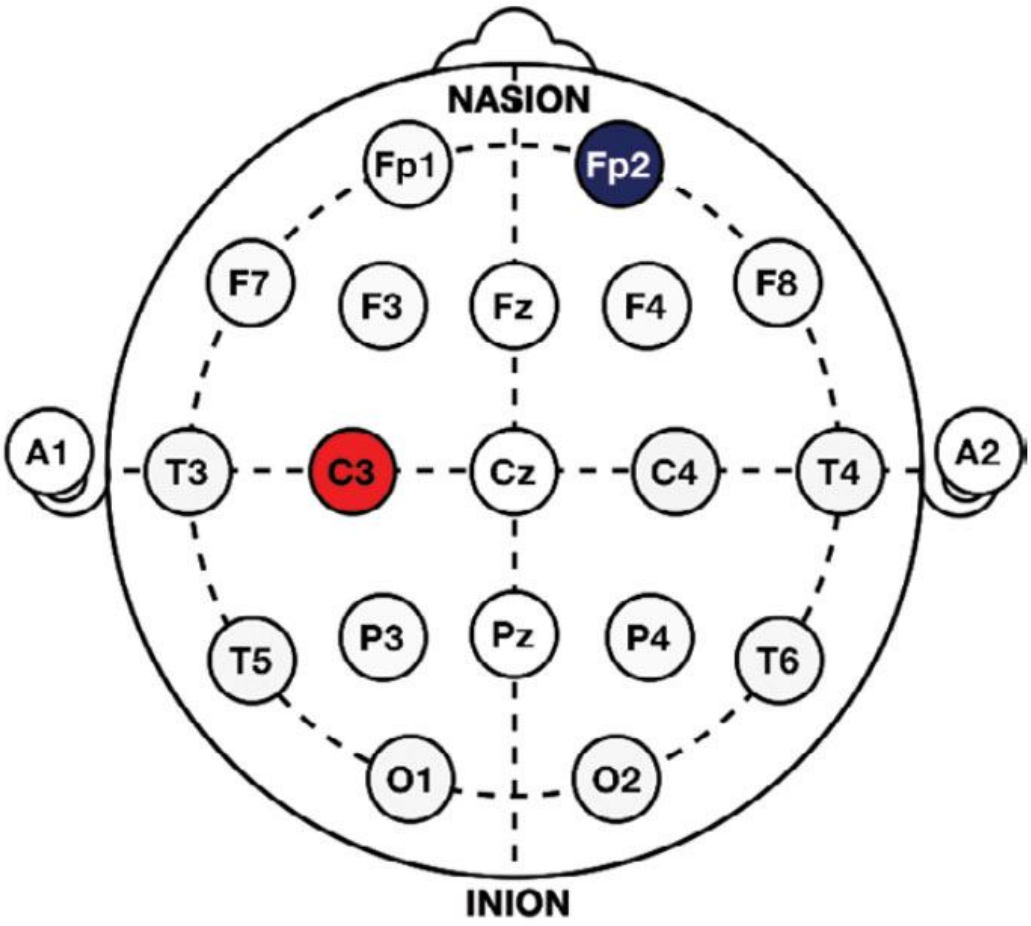
Weight Control, Addiction Recovery, Anxiety Relief:
Anode: F3
Cathode: Right Shoulder
Intensity: 2mA
Duration: 20 minutes
For weight control, user can undertake the treatment before meal. For addiction recovery and anxiety Relief, user can do while suffer from addiction and anxiety.



Improving Visual Audio-Pitch Discrimination:
Anode: T3
Cathode: Right Shoulder
Intensity: 2mA
Duration: 20 minutes
The treatment can be undertaken in a regular basis in order to improve the visual and audio-pitch discrimination.

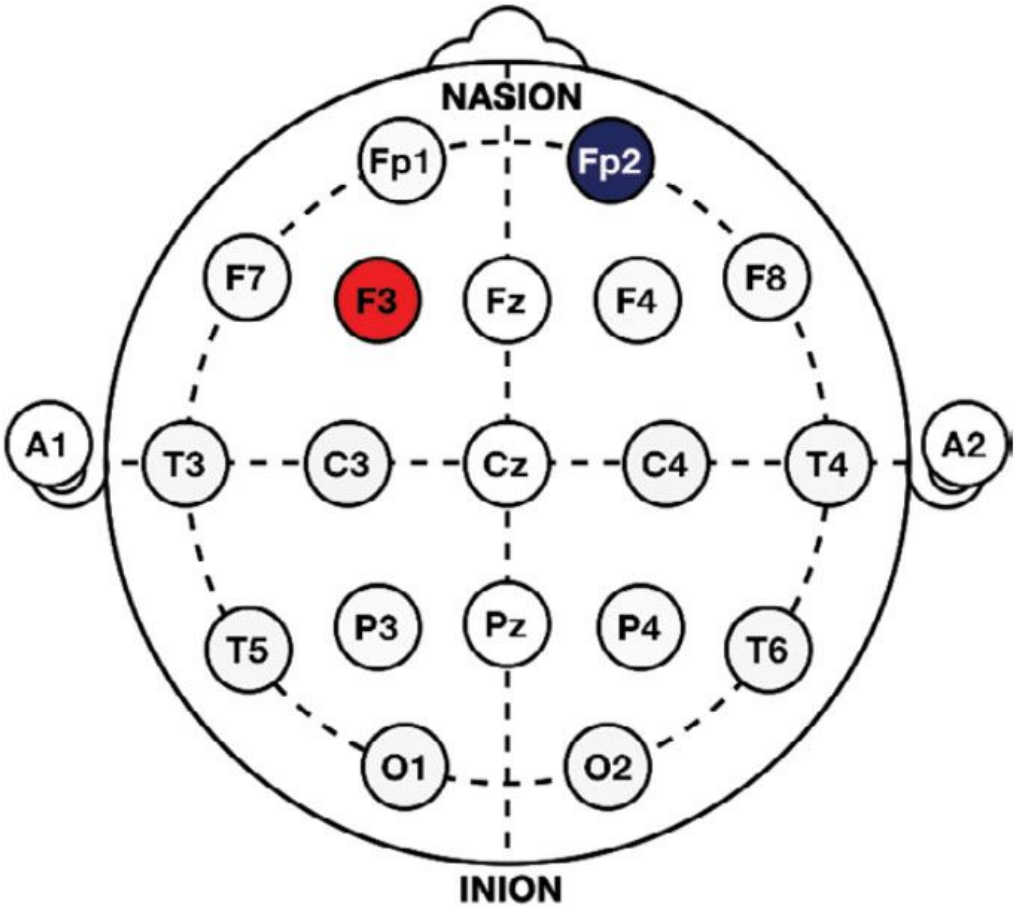


Improving Socialization:
Anode: T4
Cathode: Left Shoulder
Intensity: 2mA
Duration: 20 minutes
The treatment can be undertaken in a regular basis in order to improve socialization, including facial recognition and body language.

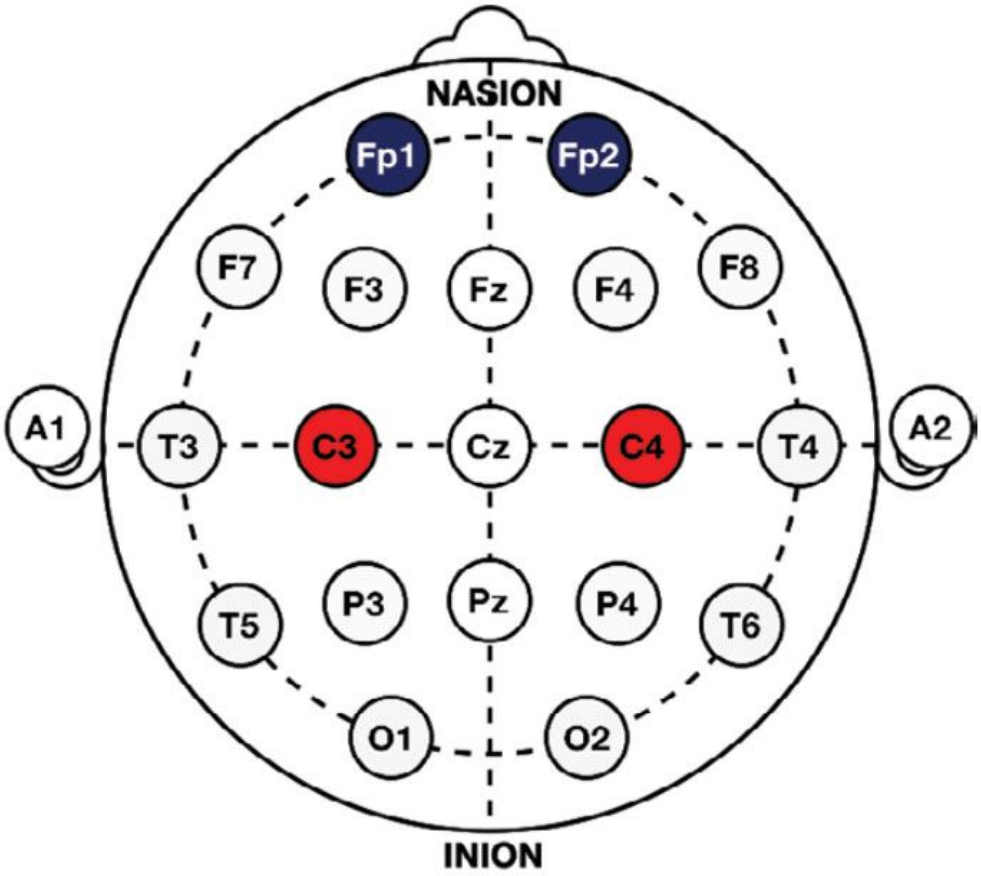


Relax, Lower Attention:
Anode: C3
Cathode: Fp2
Intensity: 2mA
Duration: 20 minutes
The treatment can be undertaken when user like to have relaxation and lower attention.

Medical Use



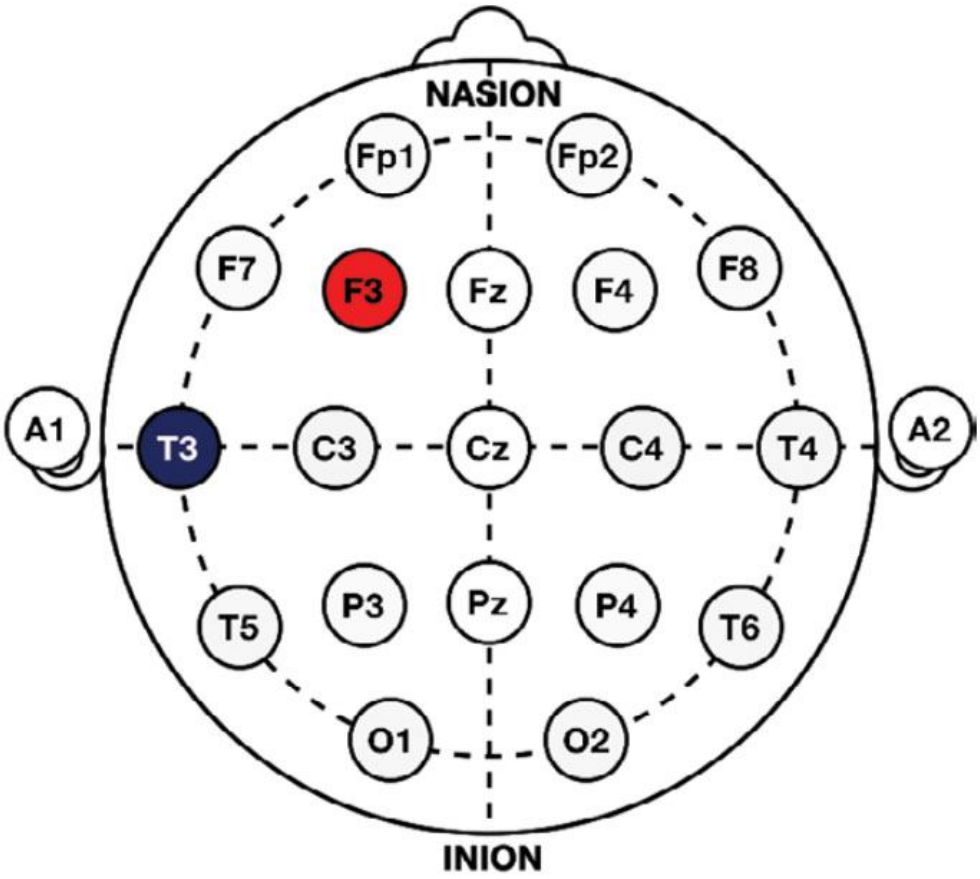
Depression:
Anode: F3
Cathode: Fp2
Intensity: 2mA
Duration: 20 minutes
While feeling depressive, user can undertake the treatment. It can also be undertaken daily as regular basis. For serious depression, patients should seek for Electro Convulsive Therapy in psychiatric clinic (ECT can be up to 800mA).



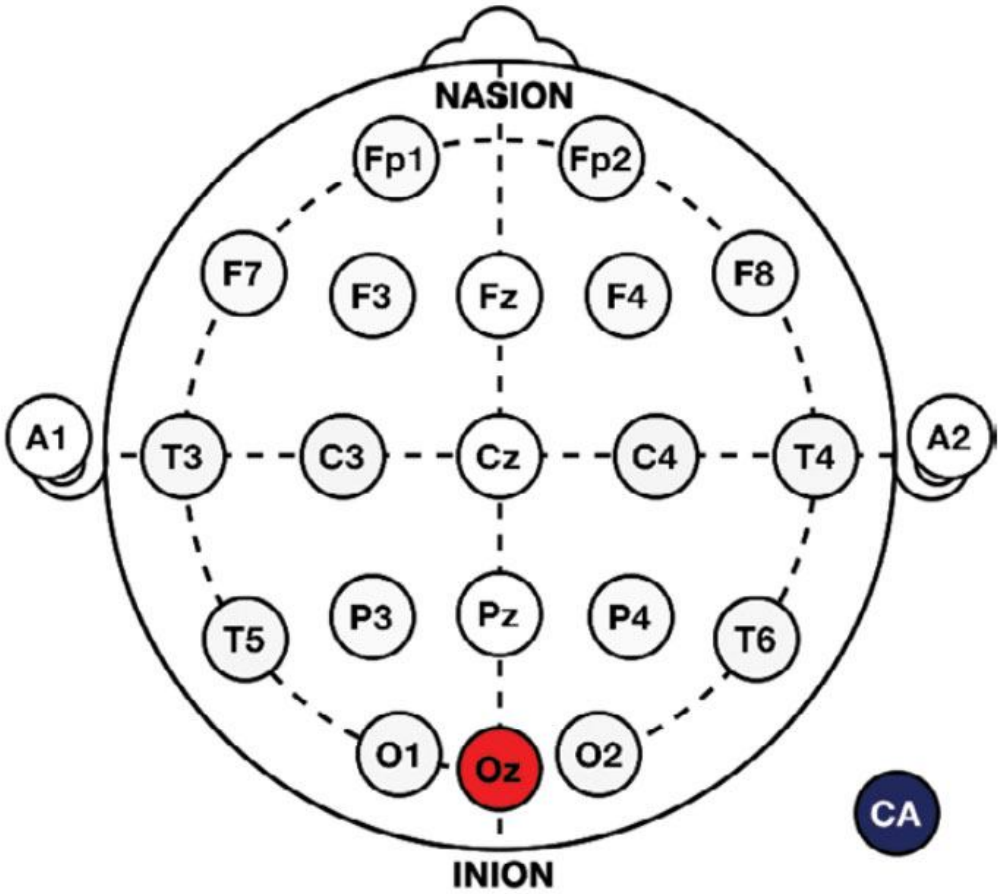
Reducing Pain (Migraine):
Anode: C3 / C4
Cathode: Fp2 / Fp1
Intensity: 2mA
Duration: 20 minutes
The treatment can be undertaken when user want to release pain, it is especially effective for chronic pain like migraine. It can also address specific side of body part for the pain, i.e. Anode on left when the pain occurs on right side of body.

Parkinson's Disease:
Anode: C3 / C4
Cathode: Fp2 / Fp1
Intensity: 2mA
Duration: 20 minutes
While Deep brain stimulation has proven efficacy but carries risks and is not possible in all patients; tDCS has shown promising results and may provide a therapeutic alternative.

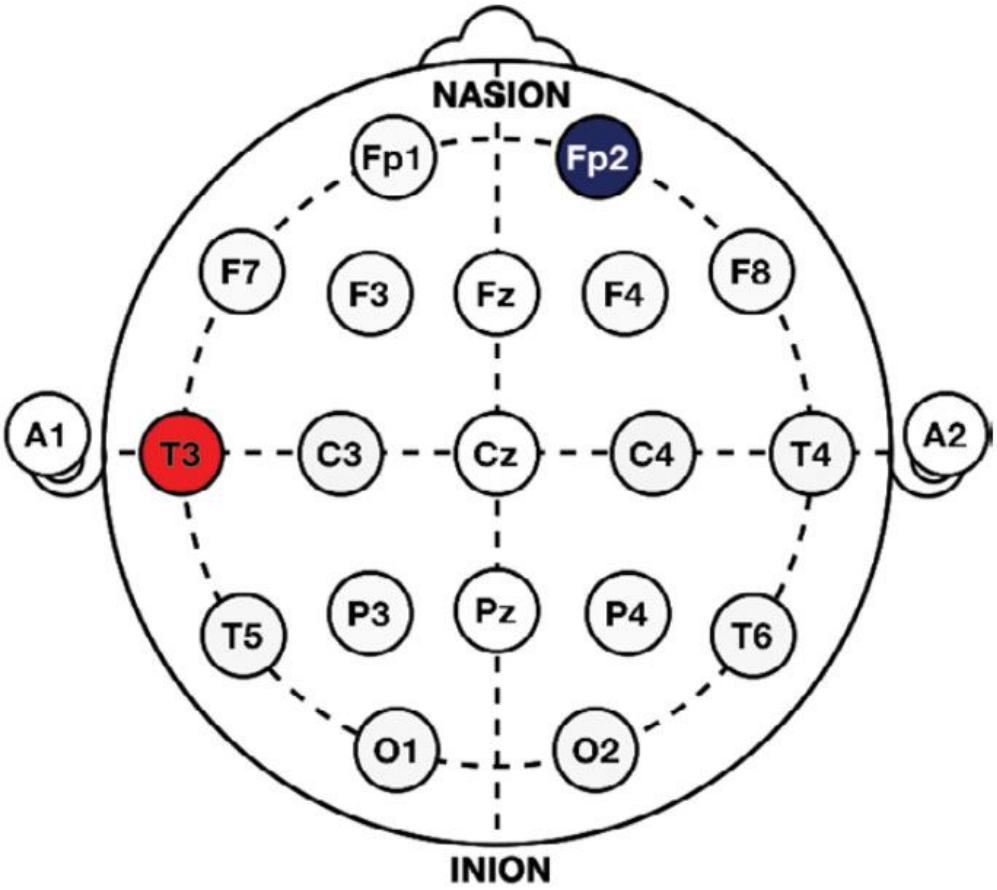
Enhancing Motor Ability and Stroke Recovery:
Anode: C3 / C4
Cathode: Fp2 / Fp1
Intensity: up to 4mA (this device only 2mA)
Duration: depends



Auditory Hallucinations:
Anode: F3
Cathode: T2
Intensity: 2mA
Duration: 20 minutes
The treatment can be undertaken as regular basis to treat refractory auditory verbal hallucinations and other selected manifestations of schizophrenia.

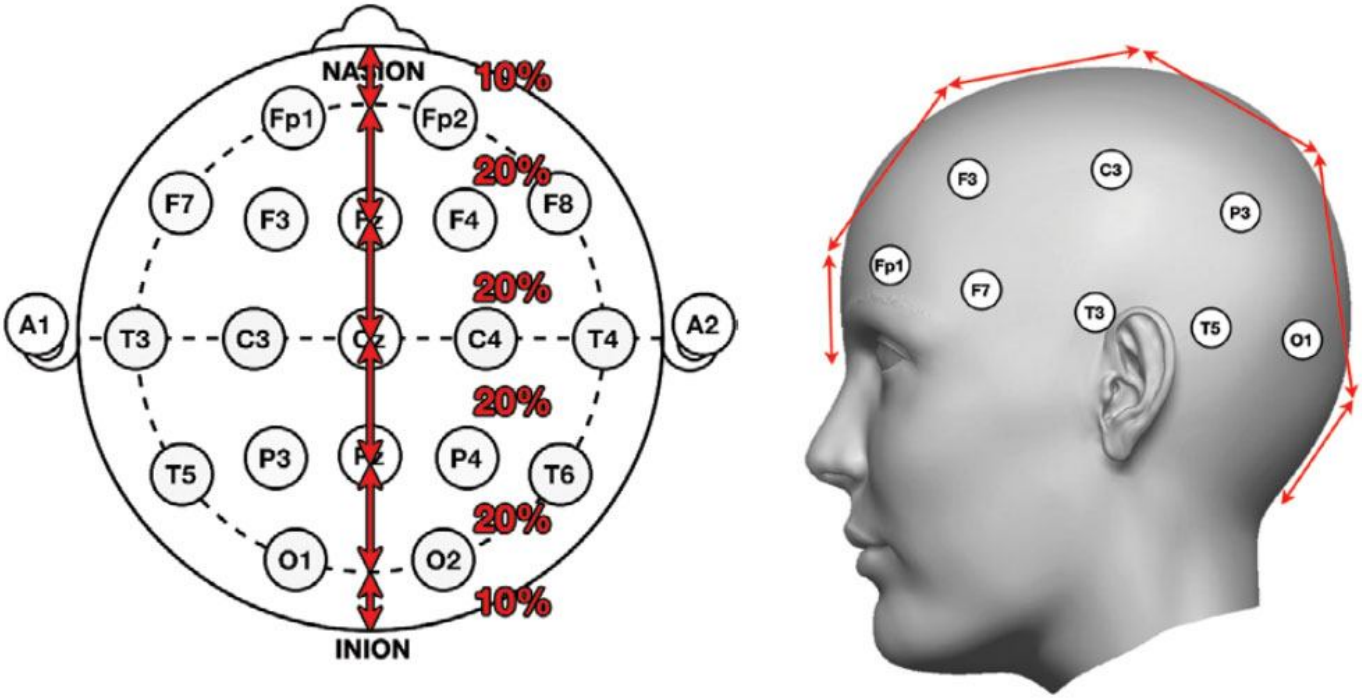


Amblyopia; Visual Enhancement:
Anode: Oz
Cathode: Right Shoulder
Intensity: 2mA
Duration: 20 minutes
By stimulating the optical lobe, user can improve visual acuity and stereopsis. An anodal transcranial direct current stimulation of the visual cortex would enhance the therapeutic effects of amblyopia treatment.

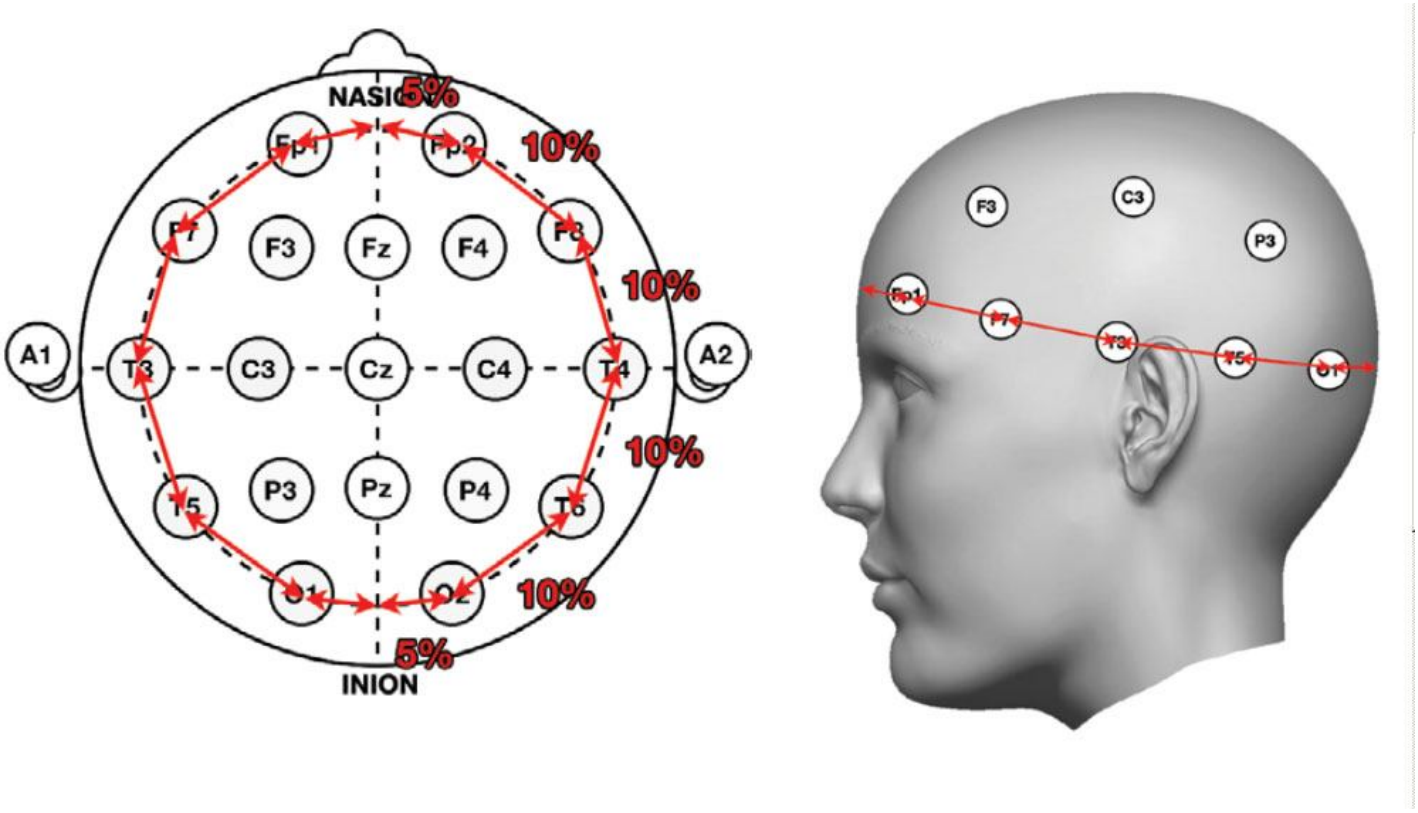


Alzheimer's disease, Memory Recall:
Anode: T3
Cathode: Fp2
Intensity: 1.5mA
Duration: 15 minutes
The treatment can be undertaken as regular basis to help the user to strengthen the cognitive ability. It is suggested that tDCS can play an role on therapy of Alzheimer's Disease and Aphasia.

10/20 system

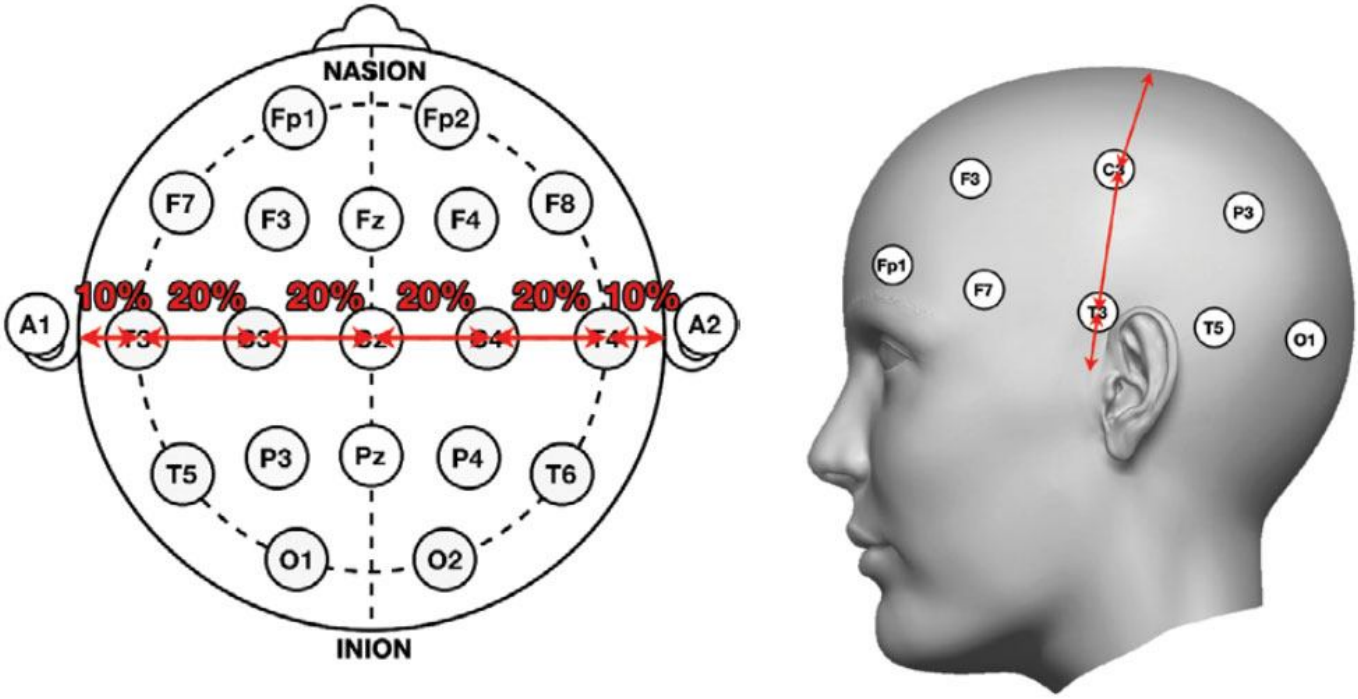


The 10/20 system is an internationally recognized method to describe the location of scalp electrodes. The system is based on the relationship between the location of an electrode and the underlying area of cerebral cortex. The numbers 10 & 20 refer to the fact that the distances between adjacent electrodes are either 10% or 20% of the total front-back or right-left distance of the skull.



Each site has a letter to identify the lobe and a number to identify the hemisphere location:

Electrode	Lobe
F	Frontal
T	Temporal
C	Central
P	Parietal
O	Occipital



Even numbers (2,4,6,8) refer to electrode positions on the right hemisphere; Odd numbers (1,3,5,7) refer to electrode positions on the left hemisphere; The “z” (zero) refers to an electrode placed on the mid line.

Four anatomical landmarks are used for the essential positioning of the electrodes: first, the nasion which is the point between the forehead and the nose; second, the inion which is the lowest point of the skull from the back of the head and is normally indicated by a prominent bump; the pre auricular points anterior to the ear.

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